

SPECIFICATION AMENDMENTS

Amend the paragraph beginning on Page 8, line 13, as follows:

-- The preferred embodiment of the present invention, as shown in Fig. 1 through Fig. 11, discloses a detachable portable apparatus 10 for analyzing human gait comprising one or more external measuring devices 42, such as one or more selectively positioned motion tracking units 20, 24 or a plantar pressure collection unit [[20]] 30 (PPC) which provides a measurement having a detachable insole [[22]] 32 fitted with a plurality of sensors 34 between the plantar side of the foot 12 and the sole 15 of the foot. The apparatus 10 is releasably secured about a user's foot during operation thereof. --

Amend the paragraph beginning on Page 8, line 17, as follows:

-- As shown in Figure 1 and in further detail in Figure 2, a first detachable motion tracking unit 20 is located at the rear of the foot 12 in proximity to the heel 13, at a location above the ankle 14. The first detachable motion tracking unit 20 includes a rearfoot motion collection and rate sensing unit 22 (FMC). As shown in Figure 1 and Figure 3, a second detachable motion tracking unit 24 is located at the rear of the foot 12 above the ankle 14. The second detachable motion tracking unit 24 includes a lower shank motion collection and rate sensing unit 26 (SMC). --

Amend the paragraph beginning on Page 8, line 21, as follows:

-- A key component in determining the gait of a specific individual depends on the movement of the rearfoot 18 and the lower shank 19 areas. Independent motion measurement units 22, 26 are placed on the rear-foot 18 and the lower shank 19, respectively, of the left and/or right foot. The units 22, 26 contain accelerometers 85, 95 and rate sensors 87, 97 to measure the

specific motion of the rearfoot 18 and lower shank 19, respectively. When in conjunction with each other, the units 22, 26 can calculate the specific motion based on the data collected, the three-dimensional static and dynamic acceleration, angular velocity of the rearfoot 18 and the lower shank 19. The ~~accelerometer~~ accelerometers 85, 95 each ~~[[chips]]~~ provide 2-axis tilt information, measuring both the static (gravity) and dynamic (body motion) movements. --

Delete the paragraph beginning on Page 9, line 8.

Amend the paragraph beginning on Page 9, line 12, as follows:

-- The plantar pressure collection unit 30, comprises force sensor resistors and pressure sensors 34, which are placed within insole 32 and located along the 1st phalange, 2nd phalange, and 3rd and 4th phalanges in the forefoot 16, along the 1st metatarsal head, 2nd metatarsal head, and 4th metatarsal head in the forefoot 16, along the 1st metatarsal base and 4th and 5th metatarsal bases in the midfoot 17, underneath the distal portion of the medial and lateral sides of the calcaneus in the midfoot 17, and at the medial and lateral surfaces of the calcaneus in the rearfoot 18 ~~located in an insole 32~~. Such configuration of the force sensor ~~[[87]]~~ resistors and pressure sensors ~~[[70]]~~ 34 allows for an accurate measurement of the plantar pressure ~~[[30]]~~ distribution. Specifically, the maximum pressure, location of the maximum pressure, mean pressure, and the pressure line can be determined. The layers on the insole 32 are flexible, electrically insulating, thin, and have resilient properties. The insole 32 ~~[[unit]]~~ is disposable and replaceable. The ~~insoles~~ insole 32 ~~is~~ ~~[[are]]~~ preferably made to selectively fit all shoe ~~[[28]]~~ sizes. --

Amend the paragraph beginning on Page 10, line 11, as follows:

-- In the processing and display unit 40, a central processing unit (CPU) 44 controls all data input from the rearfoot motion control unit 22, the lower shank motion control unit 26, and the plantar pressure collection unit 30. The data is processed by the CPU 44 for visual display [[40]] and storage. On the processing and display unit 40, the vital gait information concerning the foot 12 from which the data is collected is displayed for the user to review. The information displayed comprises of the amount of eversion/inversion angle, gait identification (over-pronate, supinate, neutral), and the plantar pressure distribution in the form of a color coded mapping strategy where the data is normalized from the body weight calibration. The user can input commands to the processing and display unit 40 by indicating the start/stop 51, 53 of the data measurement cycle and perform static calibration. --

Amend the paragraph beginning on Page 10, line 22, as follows:

-- Figure 5 is a top view of the processing and display unit 40 shown in Figure 1. The processing and display unit 40 comprises a casing 41, with a plurality of electrical components [[42]] inside, including CPU 44. A visual display on processing and display unit 40 is preferably a LCD [[58]] color display 50 in the shape of the sole of a foot 12, which displays plantar pressure [[45]] at 46 and gait line data [[46]] at 45. --

Amend the paragraph beginning on Page 11, line 4, as follows:

-- Rearfoot motion angel 47, gait style identifier 48 and shoe-life evaluator at 49 are each displayed via the visual display of the processing and display unit 40. Measurement cycle buttons and elapsed time are shown as start 51, stop 53 and elapsed time display shown at 55. A calibration button 57, LED 58 and buzzer 59 are also preferably provided. One or more

input/output ports **60** connect to external measuring devices **42**, including the PPC unit **30**, FMC unit **22** and SMC unit **26**. --

Amend the paragraph beginning on Page 11, line 22, as follows:

-- Figure 7 is a top view of the force sensor resistors and pressure sensor/FSR-signal sensors **34** placement in the PPC unit ~~[[72]]~~ **30**, shown in Figure 4. --

Amend the paragraph beginning on Page 12, line 1, as follows:

-- Figure 8 is a block diagram of the processing method, showing the FMC unit **22** of motion tracking unit **20** in one way electrical communication with a micro-controller **80**. Likewise, the SMC unit **26** of motion tracking unit **24** is also in one way electrical communication with the micro-controller **80**. A central processing unit **44** of the processing and display unit **40** is in two way electrical communication with the micro-controller **80**. A PPC unit ~~[[72]]~~ **30** directs ~~[[FSR]]~~ signals from the force sensor resistors and pressure sensors **34** to the central processing unit **82** and to the micro-controller **80**. Device input controls and LCD output **84** are in two way electrical communication with the central processing unit **82**. Memory **86** is also in two way electrical communication with the central processing unit **82**. An I/O unit **90** is also in two way communication with the central processing unit **82**. A telemetry unit **92** is in two way communication with the I/O unit **90**. --